

Claims

1. A catalyst which formally comprises zirconium dioxide (ZrO_2), yttrium oxide (Y_2O_3) and at least one oxide selected from among alkali metal oxides and alkaline earth metal oxides and in which the proportion of zirconium dioxide (ZrO_2) is from 80 to 99 parts by mass, the proportion by mass of yttrium oxide (Y_2O_3) is from 0.5 to 10 parts by mass and the proportion of alkaline earth metal oxide and/or alkali metal oxide is from 0.1 to 3 parts by mass.
2. The catalyst as claimed in claim 1, wherein the proportion of zirconium dioxide (ZrO_2) is from 90 to 98 parts by mass, the proportion by mass of yttrium oxide (Y_2O_3) is from 1.5 to 8 parts by mass and the proportion of alkaline earth metal oxide and/or alkali metal oxide is from 0.5 to 2 parts by mass.
3. The catalyst as claimed in claim 2, wherein the proportion of zirconium dioxide (ZrO_2) is from 93 to 96 parts by mass, the proportion by mass of yttrium oxide (Y_2O_3) is from 3.5 to 6 parts by mass and the proportion of alkaline earth metal oxide and/or alkali metal oxide is from 0.5 to 1 part by mass.
4. The catalyst as claimed in at least one of claims 1 to 3 which comprises an alkali metal oxide selected from among potassium oxide and sodium oxide.
5. The catalyst according to at least one of claims 1 to 3 which is in the form of granules, tablets, cylinders, rings or extrudates.
6. A process for preparing 1-olefins by catalytic dehydration (elimination of water) of alcohols at a temperature from 200 to 450 °C, in which a catalyst as claimed in any of claims 1 to 5 is used as catalyst and at least one secondary 2-alcohol or a mixture thereof is used as alcohol.
7. The process as claimed in claim 6, wherein at least one alcohol having from 5 to 27 carbon atoms is used.

8. The process as claimed in claim 7, wherein 2-hydroxyoctane is used as alcohol.
9. The process as claimed in at least one of claims 6 to 8, wherein a mixture comprising
5 further alcohols and/or hydrocarbons and also, if desired, a diluent is used.
10. The process as claimed in at least one of claims 6 to 9, wherein the dehydration is carried out in the gas phase or the mixed liquid/gas phase.
- 10 11. The process as claimed in at least one of claims 6 to 10, wherein ketones are separated off and hydrogenated from the mixture obtained in the dehydration and the alcohols obtained are recirculated to the dehydration.
12. A composition which comprises at least one 1-olefin and is obtainable by a process as
15 claimed in any of claims 6 to 11.
13. The use of a composition as claimed in claim 12 for preparing aldehydes and/or alcohols by hydroformylation of the 1-olefin present in the composition.
- 20 14. The use as claimed in claim 13 for preparing plasticizer alcohols.
15. The use as claimed in claim 13 for preparing isononanol.
16. The use of a composition as claimed in claim 12 as comonomer for preparing polyolefins.